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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,286	07/30/2003	Robert T. George	ITL.1034US (P16844)	9710

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TROP PRUNER & HU, PC
1616 S. VOSS ROAD, SUITE 750
HOUSTON, TX 77057-2631

EXAMINER	
PATEL, NIKETA I	

ART UNIT	PAPER NUMBER
2181	

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,286	GEORGE ET AL.	
	Examiner	Art Unit	
	Niketa I. Patel	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-14,16,17,20,22-25,27 and 29-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-14,16,17,20,22-25,27 and 29-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Hzm Patel

FRITZ [illegible]ING
Supervisory PRIMARY EXAMINER 5/16/2006
TC/GAU 2100
5/12/81

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-14, 16-17, 20, 22-25, 27 and 29-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Zuraski, Jr. et al. U.S. Patent Number: 6,510,508 B1 (hereinafter "*Zuraski*".)

3. **Referring to claims 1, 20**, *Zuraski* teaches a method and an apparatus comprising: a pipeline resource [see column 9, lines 30-60 and figure 2, element 39] having a plurality of address spaces [see column 1, lines 29-41], each of the plurality of address spaces corresponding one plurality of address space identifiers [see column 1, lines 29-41], the pipeline resource including entries each including one of the plurality of address space identifiers, wherein the entries are selectively flushable on an address space basis [see column 13, lines 3-11, some of the loaded address are no longer valid, consequently these addresses are flushed.]

4. **Referring to claims 8, 25**, *Zuraski* teaches a method comprising: associating an address space identifier with a value [see column 1, lines 11-41, virtual to physical mapping]; hashing the address space identifier with a portion of the value [see column 1, lines 11-41, virtual to physical mapping where the TLB stores portion of the virtual address and the corresponding

physical address]; and thereafter storing the value and the address space identifier in a pipeline resource [see column 1, lines 11-41, TLB.]

5. **Referring to claims 9,** *Zuraski* teaches wherein the pipeline resource comprises entries each including one of the plurality of address space identifiers [see column 1, lines 29-41.]

6. **Referring to claims 3, 17,** *Zuraski* teaches further comprising a control register coupled to the pipeline resource to provide the plurality address space identifiers to the entries [see column 9, lines 48-61 and figure 2, element 30.]

7. **Referring to claims 5, 22,** *Zuraski* teaches wherein the entries further include a thread identifier [see column 9, lines 43-47, 'pointer'.]

8. **Referring to claim 6,** *Zuraski* teaches wherein the pipeline resource comprises a translation lookaside buffer [see column 9, lines 30-45 and figure 2, element 39, 'TLB'.]

9. **Referring to claim 7,** *Zuraski* teaches further comprising a filter coupled to the translation lookaside buffer to select at least one of the entries to be flushed [see column 9, lines 48-61 and figure 2, element 40.]

10. **Referring to claims 10, 24, 27,** *Zuraski* teaches further comprising invalidating the entry if an update to the value occurs during a context [see column 11, lines 1-20.]

11. **Referring to claim 11,** *Zuraski* teaches further comprising selectively flushing the entry after invalidating the entry [see column 11, lines 14-20.]

12. **Referring to claim 12,** *Zuraski* teaches wherein invalidating the entry further comprises invalidating all non-global entries of the pipeline resource [see column 11, lines 14-20.]

13. **Referring to claim 13**, *Zuraski* teaches wherein invalidating the entry further comprises invalidating all entries of the pipeline resource associated with the address space identifier [see column 11, lines 14-20.]

14. **Referring to claims 14, 23**, *Zuraski* teaches further comprising associating a second address space identifier with a second value [see column 11, lines 46-65, 'new value']; and storing the second value and the second address space identifier in the pipeline resource [see column 11, lines 46-65.]

15. **Referring to claim 16**, *Zuraski* teaches a system comprising: a processor [see column 14, lines 1-5, 'processor'] including a pipeline resource including a plurality of entries each having one of a plurality of address spaces [see column 9, lines 30-45 and column 1, lines 29-41], each of the plurality of address spaces corresponding to one of a plurality of address space identifiers [see column 9, lines 30-45 and column 1, lines 29-41]; a hashing engine to hash one of the plurality of address space identifiers with a portion of a value to be stored in one of the entries [see column 1, lines 11-41, virtual to physical mapping]; and a dynamic random access memory coupled to the processor [see column 14, lines 6-11, 'DRAM'.]

16. **Referring to claim 29**, *Zuraski* teaches further comprising maintaining the first address space identifier in the first entry during the second context [see column 11, lines 46-65.]

17. **Referring to claim 30**, *Zuraski* teaches further comprising: providing a second address space identifier to the pipeline resource during a second context [see column 13, lines 3-11, page table B is loaded]; and storing the second address space identifier in a second entry of the pipeline resource [see column 13, lines 3-11, addresses from page table B are loaded into TLB.]

18. **Referring to claim 31**, *Zuraski* teaches further comprising a filter coupled to the pipeline resource to flush the entries of one of the plurality of address spaces while the entries of the missing address spaces are maintained in the pipeline resource [see column 13, lines 3-11, some of the loaded address are no longer valid, consequently these addresses are flushed.]

19. **Referring to claim 32**, *Zuraski* teaches further comprising instructions that if executed enable the system to flush the portion of the pipeline resource on a next context switch after the invalidation [see column 13, lines 3-11, some of the loaded address are no longer valid, consequently these addresses are flushed.]

20. **Referring to claim 33**, *Zuraski* teaches further comprising flushing a portion of the pipeline resource associated with the first address space identifier after invalidating the first entry [see column 13, lines 3-11, some of the loaded address are no longer valid, consequently these addresses are flushed.]

Response to Arguments

21. Applicant's arguments filed 3/16/2006 have been fully considered but they are not persuasive. The applicant argues that *Zuraski* does not each (1) a pipeline resource including entries that are selectably flushable on an address space basis and (2) hashing an address space identifier with a portion of a value before storage of the value and the address space identifier.

The examiner respectfully disagrees with these arguments.

As per the first argument, *Zuraski* teaches a pipeline resource including entries that are selectably flushable on an address space basis [see column 13, lines 3-11, some of the loaded address are no longer valid, consequently these addresses are flushed.]

As per the second argument, *Zuraski* teaches hashing an address space identifier with a portion of a value before storage of the value and the address space identifier [see column 1, lines 11-41, virtual to physical mapping where the TLB stores portion of the virtual address and the corresponding physical address.]

Conclusion

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Niketa I. Patel whose telephone number is (571) 272 4156. The examiner can normally be reached on M-F 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz Fleming can be reached on (571) 272 4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner:
Niketa Patel
05/19/2006

Supervisory
FRITZ FLEMING
PRIMARY EXAMINER
GROUP 2100
AU 2181
5/26/2006